

SECTION XI. PRINCIPAL THREAT WASTES

Principal threat wastes represent the sources of the hazardous substances that contribute to the unacceptable risk onsite. Principal threat wastes were not identified at OU 2. The OU 2 groundwater contamination has migrated from an

area considered a principal threat—OU 10. The OU 10 source materials were identified years ago. The OU 10 remedy addressed the principal threat for the Subsite.

SECTION XII. SELECTED REMEDY

Summary of the Rationale for the Selected Remedy

The EPA and NDEQ have determined the selected remedy for OU 2 is Alternative G-3. This remedy was selected because it offers superior long-term protectiveness when compared with the other alternatives. It is equally implementable as the other alternatives. The cost of Alternative G-3 is higher than either of the other alternatives, but not by so great a margin that cost represents a major impediment to implementation. The selected remedy will provide overall protection of human health and the environment by eliminating, reducing, or controlling all potential risks posed by the exposure pathways at OU 2. The treatment technologies and remedial actions included in the selected remedy will comply with ARARs and achieve performance standards listed in Section VII.

The EPA has observed that due to activities upgradient of the North Landfill Subsite, the concentration of TCE in the groundwater has increased substantially. The EPA believes this is a temporary phenomenon, as evidenced by trends in MW-5 which show TCE concentrations peaking and declining. Until this phenomenon manifested itself, it was apparent that NA processes were effectively decreasing the concentrations of TCE in the groundwater associated with the North Landfill Subsite.

As a consequence of the increased concentration of TCE in the groundwater underlying the North Landfill Subsite, employment of NA and groundwater extraction will need to continue for an undetermined period. Collection of samples from MW-5, MW-6, and MW-7 on a regular basis will provide an opportunity to monitor the

groundwater for TCE. Analytical results for these samples should demonstrate a trend of decreasing concentrations of TCE over time. The EPA believes, based on historical data, TCE concentrations will subside to the range at which they were observed before upgradient TCE was intercepted by the North Landfill monitoring wells (20 ppb).

Description of the Selected Remedy

Alternative 3 includes:

- NA – The NA is expected to (1) prevent contamination from reaching downgradient receptors, and (2) reduce the contamination in the aquifer to achieve performance standards. For cost estimating purposes, a cleanup time frame of approximately five years is assumed.
- Monitoring – Groundwater monitoring will be implemented to measure and track (1) the degradation rate(s) of the contamination in the body of the plume, and (2) the boundaries of the plume to verify that it is not expanding. This could include installation of additional properly constructed monitoring wells.
- Groundwater Use Restrictions – Groundwater use restrictions will preclude current or hypothetical future property owners from pumping groundwater for potable use until it is demonstrated through monitoring that the groundwater is suitable for potable use. This measure eliminates the exposure pathway to groundwater. (These restrictions are in

place as part of the Area-Wide Consent Decree.)

- Hydraulic Containment Using Vertical Extraction Wells – Groundwater extraction will be accomplished by Well D (primary containment), Wells IN-05 and IN-11 at the Chief Ethanol Plant (secondary containment), and the Whelan Energy Center Wells A, B, and C (tertiary containment). Containment of the impacted groundwater plume associated with the North Landfill Subsite will prevent the migration of VOCs that exceed the target concentrations beyond the boundaries of the ICA.
- Use As Non-Contact Cooling Water – The VOCs associated with OU 2 will be treated or destroyed as part of the process at the Whelan Energy Center, wherein the water is used as cooling liquid, after which the VOCs are stripped as the water is processed through a cooling tower.

Summary of the Estimated Remedy Costs

The total present worth cost estimate for the selected remedy is \$591,985. The cost estimate assumes five years is the time required to achieve the performance standards in the

aquifer. Table 7 contains a detailed accounting of costs for the selected remedy including capital and O&M.

The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the remedial alternative. Changes in the cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. Major changes may be documented in the form of a memorandum in the Administrative Record and Explanation of Significant Differences document, or a ROD amendment. This is an order-of-magnitude engineering cost estimate that is expected to be within +50 to -30 percent of the actual project cost.

Expected Outcomes of the Selected Remedy

For cost estimating purposes, it is assumed that five years will be required to achieve performance standards in the OU 2 aquifer. After achieving performance standards, OU 2 groundwater will be suitable for unrestricted uses including but not limited to drinking water supply and commercial/industrial applications. Performance standards for groundwater are the MCLs established under the SDWA.

SECTION XIII. STATUTORY DETERMINATIONS

Under CERCLA §121 and the NCP, the lead Agency must select remedies that are protective of human health and the environment, comply with ARARs, are cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against offsite disposal of untreated wastes. The following sections discuss how the selected remedy meets these statutory requirements.

PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

The selected remedy through use of NA, groundwater use restrictions, hydraulic containment using vertical extraction wells, and use as non-contact cooling water will protect human health and the environment. The unacceptable future risks associated with VOCs in groundwater will be reduced to within acceptable levels by treating groundwater to below MCLs using NA and aeration. Short-term risks will be addressed by use restrictions barring well construction in the area of the contaminated aquifer in OU 2, thereby preventing exposure to contaminated groundwater.

COMPLIANCE WITH (ARARs)

The selected remedy of NA, groundwater use restrictions, hydraulic containment using vertical extraction wells, and use as non-contact cooling water complies with all ARARs. The ARARs are presented below and in more detail in Table 5.

Chemical Specific: Action-specific ARARs include the following:

- Federal SDWA MCLs, 40 CFR §§ 141.50-141.51 and 40 CFR §§ 141.11-141.16
- Groundwater Quality Standards and Use Classifications, Title 118

Location Specific:

Location-specific ARARs are requirements that might apply to a remedial action due to the site's unique cultural, archaeological, historical, or physical setting. Location-specific ARARs will not apply to the groundwater final remedial action at the Subsite because there are no such features in the Subsite area.

Action Specific:

- Groundwater Monitoring:
The substantive groundwater monitoring requirements are relevant and appropriate as specified in RCRA 40 CFR 264, Subpart F.
- Air Stripping:
The use of air stripping with no emission controls results in the discharge of VOCs into the atmosphere. The NDEQ's Title 129 limits discharges of VOCs to 2.5 tons/year. Air emissions will comply with the Clean Air Act, 33 U.S.C. §§ 1251 et seq. as well as NDEQ's Title 129, Air Pollution Control Regulations.

COST EFFECTIVENESS

The selected remedy is cost effective and represents a reasonable value for the expenditure required. In making this

determination, the following definition was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness" [NCP § 300.430(f)(1)(ii)(D)]. The determination of cost effectiveness was made by evaluating the overall effectiveness of the selected remedy and comparing that to the costs of its implementation. The conclusion supported the determination that the selected remedy is cost effective.

The estimated present worth cost of the selected remedy is \$591,985. Alternative 1 has no costs associated with it but it is not protective. Alternative 2 is less expensive than Alternative 3 but would provide significantly less protection to potential receptors of VOC-contaminated groundwater, and would require substantially more time to remediate the groundwater contamination to below MCLs. The EPA believes the selected remedy's addition of the groundwater extraction and treatment through its use as non-contact cooling water is the best available alternative.

UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT

The selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at OU 2. The selected remedy provides the best balance of trade-offs in terms of the five balancing criteria. It is protective of human health and the environment, complies with ARARs, and also considers the statutory preference for treatment as a principal element with bias against offsite treatment and disposal. The selected remedy has acceptance from the community and the state.

Relative to other alternatives, the selected remedy offers a comparable level of long-term effectiveness and an acceptable reduction of volume and mobility through treatment. Extraction and NA will reduce the contamination levels in the OU 2 aquifer to MCLs. Treatment of extracted groundwater through use as non-contact cooling water will ensure that VOCs are adequately destroyed. Groundwater use

restrictions will prevent the public from utilizing contaminated groundwater.

PREFERENCE FOR TREATMENT

Principal threats do not exist in OU 2 as defined by CERCLA.

As documented, extraction of contaminated groundwater via Well D and other wells is reducing the concentration of VOCs in the aquifer, and NA is contributing to the remediation process. The statutory preference for remedies that employ treatment as a principal element is satisfied by Alternative 3. Extraction of water and use of the extracted water as non-contact cooling water is a significant portion of this remedy.

FIVE-YEAR REVIEW REQUIREMENT

Because the selected remedy will result in hazardous substances, pollutants, or contaminants remaining on the Subsite above levels that allow for unlimited use and unrestricted exposure, a statutory review will be conducted within five years after initiation of the remedial action to ensure the remedy is, and will be, protective of human health and the environment. The five-year review process was initiated with the submission of the Five-Year Evaluation Report of the Performance of Well D for the FAR-MAR-CO Subsite in December 2002. The next sequential submission of this document will be in December 2007. Because this document deals with Well D, it is appropriate that it be considered as accommodating the five-year review requirement for the Subsite as well.

GLOSSARY

Specialized terms used in this ROD are defined below:

Administrative Order on Consent (Consent Order): In this ROD, the Consent Order is a legal agreement signed by the EPA and a PRP that requires the PRP to perform a response action that is necessary as a result of a release or threat of release of hazardous substances.

Administrative Record (AR): The body of documents that *forms the basis* for selection of a particular response at a site. An AR is available at or near the site to permit interested individuals to review the documents and to allow meaningful public participation in the remedy selection process.

Aquifer: An underground layer of rock, sand, or gravel capable of storing water within cracks and pore spaces or between grains. When water contained within an aquifer is of sufficient quantity and quality, it can be used for drinking or other purposes. The water contained in the aquifer is called groundwater.

Applicable or Relevant and Appropriate Requirements (ARARs): The federal and state environmental laws that a selected remedy will meet.

Capital Costs: Expenses associated with the initial construction of a project.

Chemicals of Concern (COCs): Chemicals, identified during the site investigations and risk assessments, posing a potential risk because of their toxicity and potential routes of exposure to public health and the environment.

Comprehensive Environmental, Response, Compensation, and Liability Act (CERCLA): The law enacted by Congress in 1980 to evaluate and clean up abandoned, hazardous waste sites. The EPA was charged with the mission to implement and enforce CERCLA.

Consent Decree: A legal document, approved by a judge, that formalizes an agreement between the EPA and one or more PRPs outlining the terms by which the response action will take place. A Consent Decree is subject to a public comment period prior to its approval by a judge, and is enforceable as a final judgment by a court.

Contaminant Plume: A column of contamination with measurable horizontal and vertical dimensions that is suspended in and moves with groundwater.

Downgradient: Downstream from the flow of groundwater. The term refers to groundwater flow in the same way that it does to a river's flow.

Groundwater: Water beneath the earth's surface that fills pores in soils or openings in rocks to the point of saturation. Groundwater is often used as a source of drinking water via municipal or domestic wells.

Institutional Controls (ICs): The placement of laws, regulations, restrictions, etc., on a site/property, which assist or assure protection of human health by eliminating exposure pathways.

Maximum Contaminant Levels (MCLs): The maximum permissible level of a contaminant in water that is delivered to any user of a public water system.

Migrate: To move from one area to another—to change location.

Natural Attenuation (NA): Natural attenuation refers to the physical, chemical, and biological processes that reduce the mass, toxicity, volume, or concentrations of contaminants.

Operable Unit (OU): Term for each of a number of separate activities undertaken as part of a Superfund site cleanup.

Operation and Maintenance (O&M): Activities conducted at a site after the construction phase to ensure that the cleanup continues to be effective.

Parts per Billion (ppb): A unit of measurement used to describe levels of contamination. For example, one gallon of solvent in one billion gallons of water is equal to 1 ppb.

Performance Standards: Measurable values in the environment that allow the evaluation of whether a remedial action has met a given objective.

Plume: A body of contaminated groundwater flowing from a specific source.

Potentially Responsible Parties (PRPs): Any individual(s) or company(ies) such as owners, operators, transporters or generators who are potentially responsible for the contamination problems at a Superfund site. Whenever possible, the EPA requires PRPs, through administrative and legal actions, to clean up a hazardous waste site.

Present Worth Analysis: A method of evaluation of expenditures that occurs over different time periods. By discounting all costs to a common base year, the costs for different remedial actions can be compared on the basis of a single figure for each alternative.

Record of Decision (ROD): The decision document in which the EPA selects the remedy for a Superfund site.

Remedial Action Objective: The specific purpose of a remedial action usually put in terms of measurable standards in environmental media.

Remedial Alternatives: The technology, or combination of technologies, used by the EPA in treating, containing, or controlling contamination at a Superfund site.

Superfund: The nickname given by the press for CERCLA because the program was well funded in the beginning.

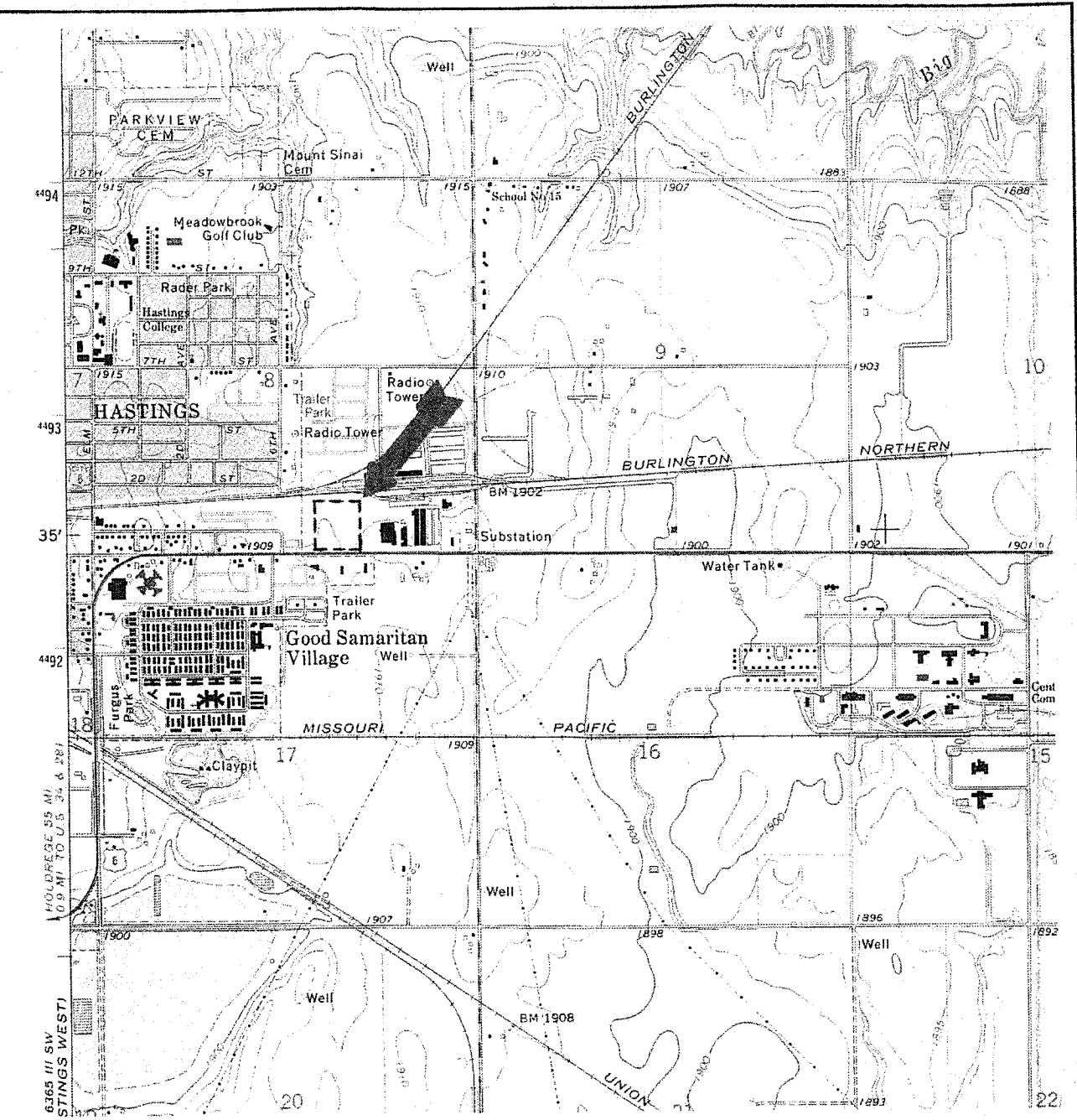
Volatile Organic Compounds (VOCs): Carbon compounds such as solvents which readily volatilize at room temperature and atmospheric pressure. Most are not readily dissolved in water, but their solubility is above health-based standards for potable use. Some VOCs can cause cancer.

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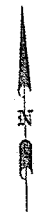
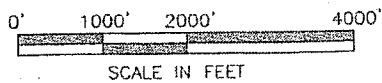
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User Name : futo



SOURCE: USGS 7.5 MIN. TOPOGRAPHIC MAP, ADAMS COUNTY, NEBRASKA.



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Drawing Date
11/23/04

File Name
AGMSITE.DWG

File Location
C:\drafting\Hastings
NORTH LANDFILL SUBSITE
U.S. HIGHWAY 6

Drawn BY
FS

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Project Manager
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Unique Number

Project Number
CI001302.0001

Figure
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SITE LOCATION MAP

HASTINGS, NEBRASKA

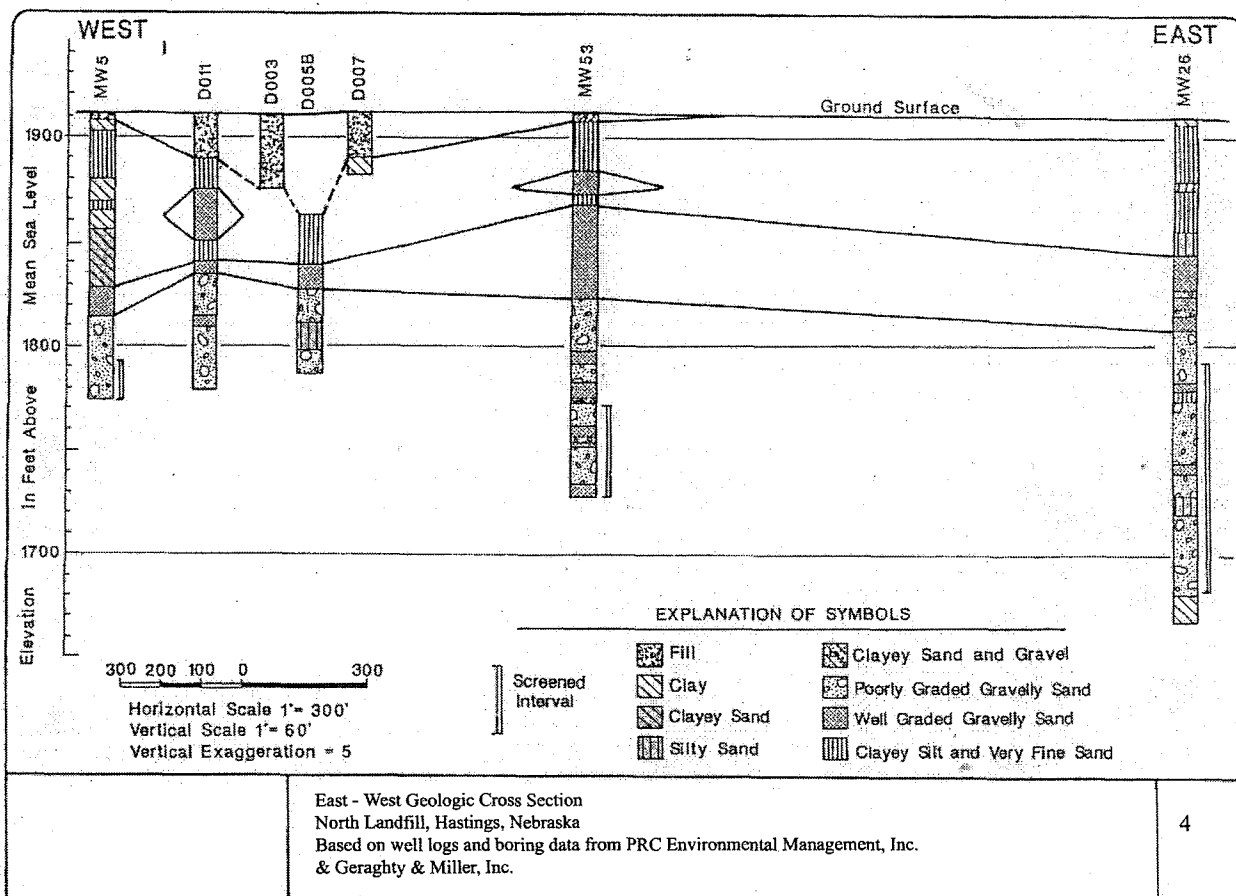


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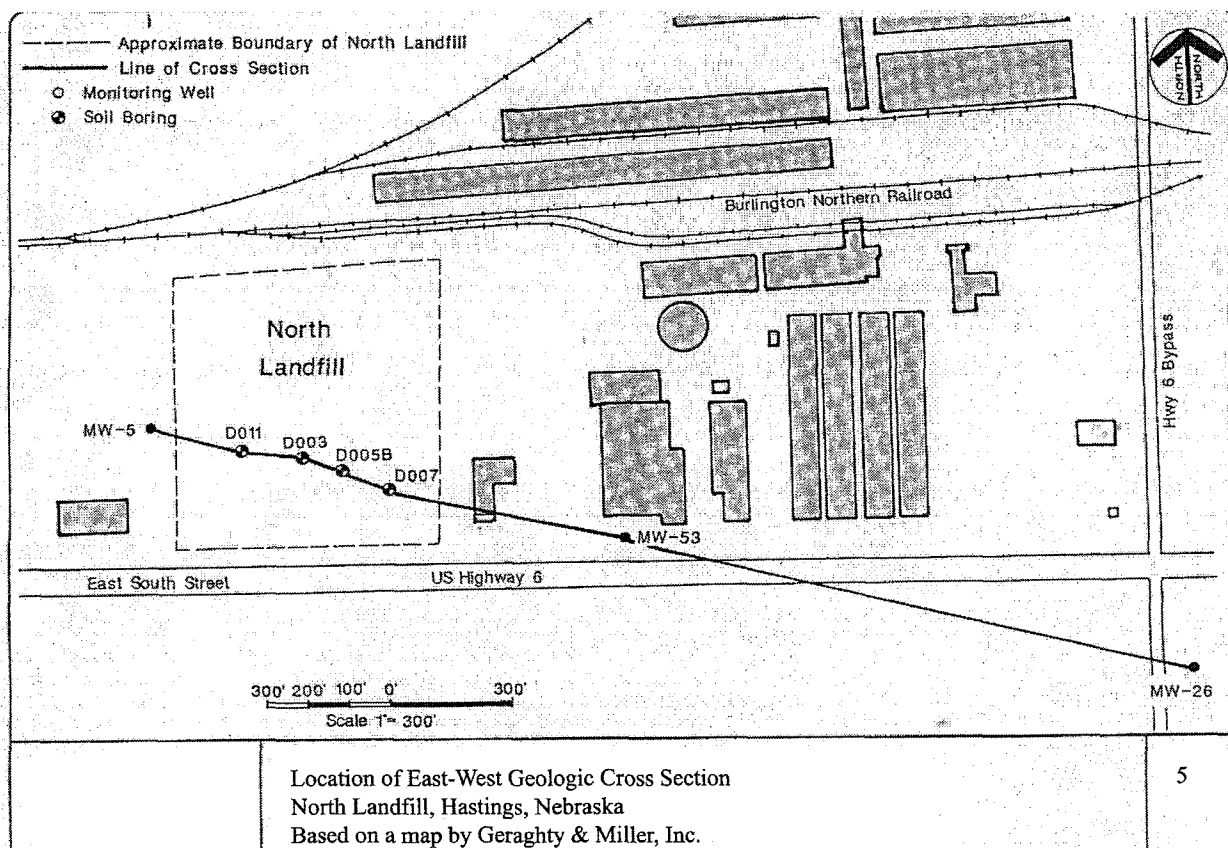


Figure 5

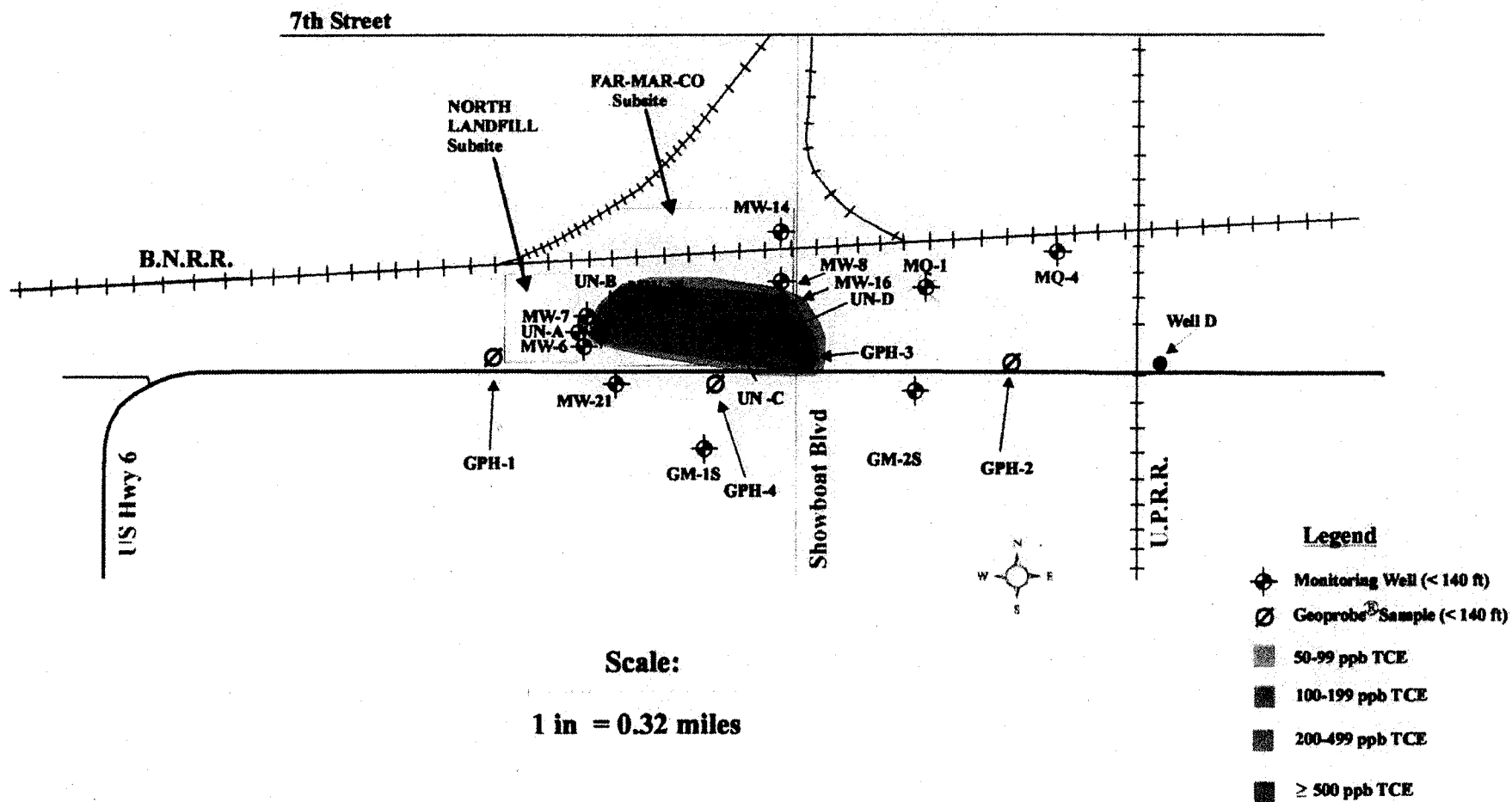


Figure 6. TCE Concentrations in Shallow Ground Water Downgradient of the North Landfill Subsite. (March 2000 monitoring well data; April 2000 Geoprobe data). Hydro-Trace, Inc.

TABLE 1. HISTORIC SAMPLING RESULTS

Sampling Date	MW-5	MW-6	MW-7
March 2001	TCE = < 5	TCE = 31; cis-1,2-DCE = 312; VC = 12	TCE = 27; cis-1,2-DCE = 53
June 2001	NS	TCE = 39; cis-1,2-DCE = 298; VC = 14	TCE = 28; cis-1,2-DCE = 44; VC = 2
September 2001	TCE = < 5	TCE = 46; cis-1,2-DCE = 214; VC = 11	TCE = 26; cis-1,2-DCE = 73
December 2001	NS	TCE = 41; cis-1,2-DCE = 162; VC = 11	TCE = 21; cis-1,2-DCE = 53; VC = 4
March 2002	TCE = < 5	TCE = 46; cis-1,2-DCE = 213; VC = 10	TCE = 26; cis-1,2-DCE = 44; VC = 2
June 2002	NS	TCE = 37; cis-1,2-DCE = 154; VC = 6	TCE = 21; cis-1,2-DCE = 46; VC = <2
September 2002	NS	TCE = 36; cis-1,2-DCE = 126; VC = 5	TCE = 18; cis-1,2-DCE = 70; VC = 2
December 2002	NS	TCE = 26; cis-1,2-DCE = 134; VC = 6	TCE = 18; cis-1,2-DCE = 62; VC = 3
March 2003	TCE = 12	TCE = 36; cis-1,2-DCE = 103; VC = 6	TCE = 28; cis-1,2-DCE = 66; VC = 3
June 2003	NS	TCE = 22; cis-1,2-DCE = 152; VC = 7	TCE = 24; cis-1,2-DCE = 64; VC = 3
September 2003	NS	TCE = 17; cis-1,2-DCE = 216; VC = 8	TCE = 9; cis-1,2-DCE = 58; VC = <2
December 2003	NS	TCE = 18; cis-1,2-DCE = 122; VC = 4	TCE = 8; cis-1,2-DCE = 55
March 2004	NS	TCE = 15; cis-1,2-DCE = 131; VC = 4	TCE = 14; cis-1,2-DCE = 32
April 2004	TCE = 330; 1,2-DCE = <10	NS	NS
June 2004	NS	TCE = 18; cis-1,2-DCE = 100; VC = 4	TCE = 24; cis-1,2-DCE = 52
September 2004	NS	TCE = 16; cis-1,2-DCE = 183; VC = 5	TCE = 81; cis-1,2-DCE = 31
December 2004	NS	TCE = 14; cis-1,2-DCE = 167; VC = 5	TCE = 40; cis-1,2-DCE = 18
March 2005	TCE = 208	TCE = 45; cis-1,2-DCE = 114; VC = 4	TCE = 40; cis-1,2-DCE = 22
April 2005	TCE = 150	NS	NS
June 2005	NS	TCE = 89; cis-1,2-DCE = 94; VC = 3	TCE = 58; cis-1,2-DCE = 30; VC = <2
September 2005	NS	TCE = 106; cis-1,2-DCE = 177; VC = 5	TCE = 112; cis-1,2-DCE = 29; VC = <2
December 2005	NS	TCE = 229; cis-1,2-DCE = 102; VC = 3	TCE = 127; cis-1,2-DCE = 24; VC = <2
March 2006	TCE = 40	TCE = 262	TCE = 141
Notes:			
NS = Not Sampled.			

TABLE 2. SUMMARY OF TOXICITY VALUES USED

Chemical	Cancer Slope Factor (mg/kg-day) ⁻¹		Reference Dose (mg/kg-day)	
	Oral	Inhalation	Oral	Inhalation
Vinyl Chloride	1.5E+00	3.1E-02	3.0E-03	2.9E-02
cis-1,2-Dichloroethene			1.0E-02	1.0E-02

TABLE 3. POTABLE EXPOSURE ASSUMPTIONS FOR OU2 GROUNDWATER

Symbol – Definition	Default
Target Cancer Risk (unitless)	10 ⁻⁶
Target Hazard Quotient (unitless)	1
Body Weight - adult (kg)	70
Body Weight - child (kg)	15
Averaging Time - cancer (days)	25,550
Averaging Time - noncancer (days)	Exposure Duration x 365
Drinking Water Ingestion - adult (L/day)	2
Drinking Water Ingestion - child (L/day)	1
Ingestion Factor - water [(L-yr)/(kg-day)]	1.1
Inhalation Rate - adult (m ³ /day)	20
Inhalation Rate - child (m ³ /day)	10
Inhalation Rate, air [(m ³ -yr)/(kg-day)]	11
Exposure Frequency (days/year)	350
Exposure Duration - residential (yrs)	30
Exposure Duration - adult (yrs)	24
Exposure Duration - child (yrs)	6
Volatilization Factor for Water (L/m ³)	0.5
Cancer Slope Factor - oral (mg/kg-day) ⁻¹	Chemical Specific
Cancer Slope Factor - inhalation (mg/kg-day) ⁻¹	Chemical Specific
Reference dose - oral (mg/kg-day)	Chemical Specific
Reference dose - inhalation (mg/kg-day)	Chemical Specific

TABLE 4. OU 2 GROUNDWATER: COMPARISON OF SITE CONCENTRATIONS TO RISK-BASED ACCEPTABLE CONCENTRATIONS

Chemical	Maximum Site Concentration (ppb)	Location (Boring #)	Risk-Based Concentration (ppb)	Max Site Exceeds Risk-Based?
Vinyl chloride	39	MW-6	0.02	Yes
Cis-1,2-DCE	600	MW-6	61	Yes

TABLE 5. APPLICABLE OR RELEVANT AND APPROPRIATE REGULATIONS (ARARS)

Chemical-Specific ARARs		
Regulation	Citation	Description
Safe Drinking Water Act (SDWA)	40 CFR, §141.50 - 141.51 and 40 CFR §141.11 - 141.16	These regulations include maximum contaminant levels (MCLs) for each contaminant. Primary drinking water standards promulgated under the SDWA apply to drinking water "at the tap" as delivered by a public water supply system. Title 118 MCLs apply in the groundwater. These same standards are relevant and appropriate to groundwater contamination. These requirements are relevant and appropriate to all three alternatives.
Groundwater Quality Standards and Use Classifications	Title 118 Chapter 4	
Action-Specific ARARs		
Federal and State RCRA	40 CFR Part 264, Subpart F	Specifies requirements for groundwater monitoring. Applicable to Alternatives 2 and 3.
Federal Clean Air Act	33 U.S.C., §1251 et seq.	Treatment technology standards for emissions to air from air stripper/cooling tower. Applicable to Alternative 3.
Nebraska Air Quality Regulations	Title 129	

TABLE 6. COMPARISON OF ALTERNATIVES

THRESHOLD CRITERIA	ALTERNATIVE G-1 NO ACTION	ALTERNATIVE G-2 GROUND WATER USE RESTRICTIONS + NATURAL ATTENUATION	ALTERNATIVE G-3 #2 + HYDRAULIC CONTAINMENT USING VERTICAL EXTRACTION WELLS, USE AS NON-CONTACT COOLING WATER
1. PROTECTIVENESS	Fails protection of human health because it does not monitor or otherwise address GW contamination downgradient of Well D. As a result, the analysis of Alternative 1 ends.	Protective	Protective
2. COMPLIES WITH ARARS: <ul style="list-style-type: none"> • Chemical-Specific • Location-Specific • Action Specific 	Not Applicable (refer to Criteria 1)	Complies Not timely Not applicable Complies	Complies Meets MCLs in 5 years Not applicable Complies
BALANCING CRITERIA	ALTERNATIVE G-1 NO ACTION	ALTERNATIVE G-2 GROUND WATER USE RESTRICTIONS + NATURAL ATTENUATION	ALTERNATIVE G-3 #2 + HYDRAULIC CONTAINMENT USING VERTICAL EXTRACTION WELLS, USE AS NON-CONTACT COOLING WATER
3. LONG-TERM EFFECTIVENESS AND PERMANENCE (LTEP)	Not Applicable (refer to Criteria 1)	Alternative G-2 provides LTEP	Alternative G-3 provides LTEP
4. SHORT-TERM EFFECTIVENESS	Not Applicable (refer to Criteria 1)	Alternative G-2 provides short-term protectiveness	Alternative G-3 provides short-term protectiveness
5. REDUCTION OF TOXICITY, MOBILITY AND VOLUME (TMV)	Not Applicable (refer to Criteria 1)	Alternative G-2 provides reduction of TMV through natural attenuation	Alternative G-3 provides reduction of TMV through natural attenuation, and more through treatment at the Whelan Energy Center

THRESHOLD CRITERIA	ALTERNATIVE G-1 NO ACTION	ALTERNATIVE G-2 GROUND WATER USE RESTRICTIONS + NATURAL ATTENUATION	ALTERNATIVE G-3 #2 + HYDRAULIC CONTAINMENT USING VERTICAL EXTRACTION WELLS, USE AS NON-CONTACT COOLING WATER
6. IMPLEMENTABILITY	Not Applicable (refer to Criteria 1)	Alternative G-2 is technically and administratively implementable. The means and procedures for ground water sampling, extraction, and evaluation are available and no administrative opposition is anticipated	Alternative G-3 is technically and administratively implementable. The means and procedures for ground water sampling, extraction, and evaluation are available and no administrative opposition is anticipated
7. COST	Not Applicable (refer to Criteria 1)	The estimated present worth cost is \$171,031.	The estimated present worth cost is \$591,985. The difference in cost between Alternatives G-2 and G-3 is related to the pumping of Well D and transfer of that water to the Whelan Energy Center for use as non-contact cooling water
MODIFYING CRITERIA	ALTERNATIVE G-1 NO ACTION	ALTERNATIVE G-2 GROUND WATER USE RESTRICTIONS + NATURAL ATTENUATION	ALTERNATIVE G-3 #2 + HYDRAULIC CONTAINMENT USING VERTICAL EXTRACTION WELLS, USE AS NON-CONTACT COOLING WATER
8. STATE ACCEPTANCE	Not Applicable (refer to Criteria 1)	No Comment	The state of Nebraska supported this alternative, identified as the Preferred Alternative, during the Proposed Plan. The State's support was contingent on the reaction received during the public comment period.
9. COMMUNITY ACCEPTANCE (continued)	Not Applicable (refer to Criteria 1)	No Comment	Acceptable. No comments were received to identify otherwise. PRPs indicated resistance to selection of this alternative due to the recent discovery that new contamination from upgradient of the North Landfill has been discovered. This contamination, from a source not associated with North Landfill, should move past the North Landfill within 2 years.

TABLE 7. Cost Estimate for Selected Remedy

ITEM	UNIT	UNIT QUANTITY	UNIT COST (\$)	TOTAL COST (\$)
1. GROUND WATER USE RESTRICTIONS				
Administrative Costs	LS	1	\$15,000.00	\$15,000.00
			Subtotal:	\$15,000.00
2. GROUND WATER EXTRACTION/REUSE				
Capital Repairs	LS	1	\$20,000.00	\$20,000.00
			Subtotal	\$20,000.00
3. MONITORING				
Labor, Sampling (\$/yr)	LS	1	\$22,000.00	\$22,000.00
Laboratory Analysis (\$/yr)	LS	1	\$11,400.00	\$11,400.00
Reporting, 4 reports/yr (\$/yr)	4 reports	1	\$8,000.00	\$32,000.00
			Subtotal	\$65,400.00
4. O & M				
Visits/Repairs (\$/yr)	LS	1	\$20,000.00	\$20,000.00
Power Costs (\$/yr)	Month	12	\$650.00	\$7,800.00
			Subtotal	\$27,800.00
5. CONTINGENCIES			20 % of cost	
6. PROJECT MANAGEMENT			15 % of cost	
			CAPITAL COSTS TOTAL:	\$47,250.00
			ANNUAL COST TOTAL:	\$125,820.00
			PRESENT VALUE TOTAL:	\$591,985.00

**RECORD OF DECISION
RESPONSIVENESS SUMMARY**

**HASTINGS GROUNDWATER CONTAMINATION SITE
NORTH LANDFILL SUBSITE
HASTINGS, NEBRASKA**

**PREPARED BY:
U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION VII
KANSAS CITY, KANSAS**

AUGUST 2006

RESPONSIVENESS SUMMARY

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**RESPONSIVENESS SUMMARY
HASTINGS GROUNDWATER CONTAMINATION SITE
NORTH LANDFILL SUBSITE
HASTINGS, NEBRASKA**

1 OVERVIEW

The U.S. Environmental Protection Agency (EPA), with concurrence from the Nebraska Department of Environmental Quality (NDEQ), made a preliminary selection of the preferred remedial alternative in the Proposed Plan. The preferred remedial alternative addressed contaminated groundwater for Operable Unit 2 (OU 2) of the Hastings North Landfill Subsite (Subsite). The treatment technologies included within the preferred alternative were: (1) groundwater use restrictions; (2) hydraulic containment using vertical extraction wells; and (3) use of extracted water as non-contact cooling water at the Whelan Energy Center.

The comments received from representatives of potentially responsible parties¹ who attended the public meeting (held on April 17, 2006) in Hastings primarily concerned the desire of these parties to invalidate the preferred alternative from the Feasibility Study (FS) on the basis of recently changed conditions within the aquifer. Section 3.1 presents a detailed summary of those questions and responses. There were no comments received from general members of the public.

The EPA received written comments from two parties: Hydro-Trace Inc. (on behalf of the city of Hastings and Dutton-Lainson Company) and Dravo Corporation. Readers are directed to Section 3.2 for a detailed summary of those comments.

2 BACKGROUND ON COMMUNITY INVOLVEMENT

The FS and the Proposed Plan for OU 2 were released to the public on April 10, 2006. The Administrative Record (which includes numerous remedial investigation documents, the FS report, and the Proposed Plan) was made available for public review at the information repositories maintained at the Hastings Public Library and at the EPA's Region 7 office in Kansas City, Kansas. The notice of availability of the Administrative Record was published in The Hastings Tribune on both April 11 and April 15, 2006. The public comment period on the Proposed Plan ran for 30 days from April 10 to May 9, 2006, with a 10-day extension granted to allow additional time to submit comments.

¹ Potentially responsible parties at the North Landfill Subsite are the City of Hastings, Dutton-Lainson Company, Dravo Corporation, and the U.S. Navy.

A public meeting was held by the EPA and the NDEQ on April 17, 2006, in the Hastings Public Library. Over 1,100 letters were sent to citizens of Hastings advertising the meeting. Interested citizens were given the opportunity to hear a summary of the Proposed Plan and to provide comments or ask questions concerning the investigations or remedial alternatives. A transcript of the public meeting was made. At this meeting the EPA and the NDEQ representatives answered questions about problems at the Subsite and the Superfund remedial process.

3 SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD

3.1 Oral Comments Received during the Public Meeting

Comments and responses provided here are paraphrased from the transcript of the public meeting which is part of the Administrative Record.

Comment #1

Reassessment of the North Landfill data recently has revealed that the intrinsic remediation which was occurring in the groundwater has been interrupted due to the intrusion of contamination from an upgradient source into the North Landfill. The natural attenuation (NA) which was occurring would have been complete by this time were it not for the upgradient air sparging, which has caused trichloroethene (TCE)² levels in the groundwater downgradient of North Landfill to have returned to their original TCE concentrations.

Response

EPA agrees the data indicates an upgradient source of TCE contamination in the groundwater has been intercepted by the North Landfill monitoring wells. The EPA believes, however, this phenomenon will be temporary.

Comment #2

It is clear given all the history of all the sampling in this area that the EPA should be able to make the determination that this is upgradient contamination that is now showing up in these wells and that, really, the North Landfill Subsite has come full circle and pretty much remediated to Maximum Contaminant Levels (MCLs)³ to meet the state applicable or relevant and appropriate requirements (ARARs).⁴

² TCE or trichloroethene is a contaminant of concern at the North Landfill.

³ MCLs are the maximum contaminant levels established under the Safe Drinking Water Act. The National Contingency Plan requires that a remedy be protective of human health and the environment. To achieve that goal, this ROD states that MCLs are the cleanup goals for the contaminants of concern.

⁴ ARARs refer to applicable or relevant and appropriate requirements (laws, regulations, standards, etc.)

Response

EPA agrees in part. The TCE levels had been decreasing, although at the lowest levels detected, they exceeded MCLs. The EPA agrees there is an upgradient source that in the past year and a half has affected the levels of TCE at the North Landfill. The EPA believes this is a temporary phenomenon. The EPA does not agree with the comment the Subsite is ready for closure. The current data indicate continued operation of Well D is necessary until data show the levels of the contaminants of concern are maintained at or below MCLs .

Comment #3

The PRP group has remediated and remediated and spent a lot of money doing it. Under the Superfund and under everything used for measurement, it's time to put closure to some of these sites, and this North Landfill is one of these sites which is ready for closure. If Well D is going to operate for some period of time to give the added protection of additional remediation, that's fine, but this Record of Decision and the conclusions of the Agency ought to be closure. It has been demonstrated in the five-year report, in everything that has transpired over the years since the landfill was capped, and since Well D has been pumping, that this Subsite is ready for closure.

Response

See Response # 1 and # 2.

3.2 Written Comments Received

3.2.1 From Interested Citizens

None received.

3.2.2 Written Comments from PRPs

Two letters were received in which PRPs provided comments. The first was from Roy Spalding of Hydro-Trace, Inc., on behalf of PRPs the City of Hastings and Dutton-Lainson Company. The second was from Dravo Corporation another PRP. The Hydro-Trace letter provided the following comments:

1. The City and Dutton-Lainson are very concerned about the recent interception by the North Landfill monitoring wells of moderately high TCE concentrations from an upgradient source;
2. The recent excursions of the upgradient TCE into the North Landfill Subsite area have effectively ended any ability to gauge the ongoing effectiveness of NA in

remediating contamination originating at or in connection with the North Landfill Subsite; and

3. Historical sampling data indicated that the Subsite would have been remediated to concentrations near or below maximum contaminant levels by the end of 2006 had there not been an upgradient source.

Response

EPA agrees that there is an upgradient source impacting the North Landfill monitoring wells but believes this phenomenon will be temporary.

The EPA does not agree with the comment that the Subsite is ready for closure. The current data indicate that continued operation of Well D is necessary until data show that the levels of the contaminants of concern are maintained at or below MCLs.

The Dravo letter provided the following comments:

1. Dravo agrees with the EPA's Proposed Plan;
2. At this time, evidence of possible North Landfill contributions to the deeper groundwater contamination is unknown. However, Dravo believes there may be some residual source from the North Landfill that has traveled vertically downward past the shallow leachate plume, contributing contaminant mass to the deeper plume;
3. Dravo disagrees with other comments that this Subsite is ready for closure insofar as the commenter suggested a no action alternative should be selected as the preferred remedy;
4. The current concentration levels at the North Landfill are most likely temporary and they are expected to decrease with time as optimization of the upgradient treatment system(s) occurs; and
5. Dravo disagrees with a comment at the public meeting that an addendum to the feasibility study should be conducted.

Response

EPA agrees that data indicate an upgradient source of TCE contamination in the groundwater has been intercepted by the North Landfill monitoring wells.

EPA agrees with the comment that there is no need for an addendum to the feasibility study.